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ABSTRACT

A study, to support the need for exploratory research, was designed to elicit a description of the medical chart located in its setting--the chart was looked "through" as a tool (as a means to an end to effect particular medical goals) and looked "at" itself as technology. This could provide a way to understand the relationship between the practice and the process of writing and material tools, a way to understand the relationship between the practice and the process of writing and technology. Data were collected from a medical college in the midwest with a multi-disciplinary work site associated with 16 hospitals. Features of the chart as a tool came directly from the sample chart in the student manual; 13 features, their descriptions, and instructions to predoctoral students enabled the identification of distinctive characteristics that make the medical chart a unique tool. Methodology for examination of the chart as technology involved listing its systemic complexities: its actions, uses, objects, participants, and goals. A complex array of issues involving knowledge control, textual production, and the jurisdiction of social disease accompanies the person to person interaction at the site--the technologizing of literacy. Moreover, the medical goal of providing optimum health care is not separated from the writing of this health care. Thus, the chart takes on a given shape not only because of standardization and specified, systematized procedures but also because it is tied to humans and their choices informed by ideological, political, economical, and ethical concerns. (NKA)

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TECHNOLOGICAL CHANGE AND THE MATERIAL CONDITIONS OF THE LITERATE PRACTICE OF MEDICINE

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This presentation represents a study developed to support the need for exploratory research focusing on the medical chart. While extensive research has examined doctor patient relationships (Zimmerman & West, 1975, Shuy, 1993; Fisher, 1993; Todd, 1993; Waitzkin, 1991), the structure of the medical interview in terms of discourse (Waitzkin, 1984; Mishler, 1984), medical histories (Epstein, 1992), asymmetrical roles of the doctor and patient in the medical encounter (Fisher & Todd, 1984; ten Have, 1991) and the role of interruptions in these medical encounters (West, 1992), little to no literature exists investigating the nature or role of the medical chart. My interest was piqued in the chart as I heard medical personnel state that doing charts is doing medicine. Given this gap in the literature, this study is preliminary and is designed to elicit a description of the medical chart located in its setting as it exists. Based upon my data, the perspectives that emerged allow a description of the medical chart that is two-fold: I will look through the chart as tool, as a means to an end which is to effect particular medical goals, and I will look at the chart itself as technology, not only at its consequences. By tool, I mean the chart as an object with physicality and materiality. The chart as tool facilitates work and is produced by human workmanship. By technology, I mean the chart as a system in a more global sense. According to Christina Haas in her book Writing Technology, a technology is—quote—"a vital system that is bound to the world of time and space; that is, a technology is always inextricably tied both to a particular moment in human history and to the practical action of the human life world in which it is embedded"—end quote. Because of the chart's dual life as tool and technology, this study has the potential to provide a way to understand the relationship between the practice and the process of writing and material tools, and a way to understand the relationship between the practice and the process of writing and technology—in this case, the medical chart at a given site.

I pay attention to the way the chart as tool is used and how it produces other tools, to the way the chart as technology incorporates the setting in which it is written, its activities, its uses, the objects it employs, the participants involved, and the goals as technological systems.

I approached this study by collecting data from a college of medicine in the Midwest whose multi-disciplinary work site is associated with sixteen hospitals including eight teaching hospitals providing clinical training. Its faculty consists of approximately fifty full-time members who teach and conduct research in addition to more than 1400 physicians who teach students in associated hospitals. Through this facility, I have had access to meetings that include their charting course instructor, several discussions with the charting course instructor, and a copy of their pre-doctoral student charting course manual that includes a sample medical chart in an appendix. I will insert here that I made several aggressive attempts to obtain real charts for this study—my own and those of family members. That process of obtaining patient charts has turned out to be fascinating enough to churn out several pages of data for another study. The stated availability of patient charts to the patient by the medical profession appears, in this case at least, to be undermined by the procedures and red tape I encounter at every turn. And I realize, from another perspective, charts are implicated as legal documents. I point out here that the physician in this presentation is an idealized doctor pulled from the charting manual. Also, from hereon, I will refer to the doctor as gendered female and to the patient as gendered male.

First, I look through the chart as tool. These features come directly from the sample chart in the student manual and represent the components of the chart. I note here, that this sample chart represents medical charts as they are practiced in the informant's fairly standardized data collecting procedures.

Some variations of these procedures and forms are evidenced across charts written by doctors in their offices. In other words, the chart is not as standardized as, say, a prescription form.

These 13 features, their descriptions, and instructions to predoctoral students enabled me to further identify distinctive characteristics that appear to make the medical chart unique as a tool. The questions guiding the investigation of the chart as tool are as follows: What are the characteristics of the medical chart? How is the chart produced, processed, transported, used? By "characteristics," I mean the qualities traits that distinguish a chart from some other collection of print text, such as a book, for example that is a collection of prefice, table of contents, chapters, epilogue, and bibliography.

1. The chief complaint is listed in the chart as a direct quote or paraphrase of patient's own words.
2. The doctor develops the present history methodologically and chronologically, excluding irrelevant material from the patient's narrative.
3. The doctor constructs a past history from prior major illnesses, operations, traumas, medications, allergies, and immunizations.
4. The patient profile addresses issues related to the patient and family and includes a psychosocial review regarding stress and anxiety levels experienced by the patient.
5. A few examples of health risk factors are substance use, environmental and occupational risks.
6. Feature 6 is a review of what the doctor has constructed in the histories, and she reminds patient of information forgotten or repressed.
7. In collecting a sexual history, the doctor is careful to assess the patient's comfort level in discussing sexual issues.

8. The doctor conducts a methodical search for normal and abnormal physical findings, and
9. These findings are documented on the standardized problem oriented medical record
10. The assessment and plan is the doctor's plan for patient treatment.
11. In the Problem List, the doctor synthesizes and organizes data into a coherent and easily retrievable reference.
12. To follow up on the patient, the doctor records data as it returns, spells out the progress of the illness and therapy, and reveals the reasoning behind doctor's decisions. In this section, the doctor also documents the patient's resistance or willingness to cooperate
13. In this last section, the doctor cites any concerns from her perspective about the reliability of information gained during the interview is included in this last feature—guidelines from the student manual instruct the predoctoral student to attend to these questions: Is what the patient is saying congruent with how it is said?, Does the patient make contradictory statements?, Does the doctor feel the patient is withholding information?

With chart as tool, it facilitates the work of writing, organizing data, and practicing medicine (the work of the doctor) and facilitates acting like a patient (the work of the patient). These two participants in the medical encounter do not want to pay close attention to the chart—to consciously notice its parts, how they function and are used. These features, as listed, have in common distinctive characteristics: They are a collection of data that represents all information obtained from and about a patient. The data is standardized and systematized. As such, the chart is a tool for work. It is a tool to look through, as a means to an end, to the goal as stated in the student charting manual, --quote—"The goal is to pursue each problem to the ultimate level

of resolution necessary to insure quality medical care"—end quote. Seen through in this way, as a means to achieve this goal, the chart appears neutral, transparent, objective.

But is it? How does a doctor decide, for example, what material is irrelevant in the patient's narrative of his illness? Is this kind of decision neutral, transparent, objective? As the doctor integrates, synthesizes and systematizes the organization of this data, we can look at the chart itself as technology. I stated earlier that this study may provide an understanding of the relationship between the practice and process of writing and technology. Data from an interview with the charting course instructor provides practical application of this relationship. This instructor articulated four primary skills that medical students need to acquire if they are going to make it as a doctor. They are: learning the medical language, learning how to translate or convert this language back to laypersons' language for patients' use, learning problem solving skills, and learning motor skills essential to patient examination. According to this instructor and to the students interviewed, these skills involve the integration of, what students call "hard stuff" or drugs and diseases, and what students call "soft stuff" or standardized charting procedures materialized in writing. These skills, then, converge at the site of the chart. Learning how to chart, this instructor argues, is learning how to practice medicine. She emphasizes that learning to do charts is learning to do medicine. Can we say, then, since writing is material, that writing is charting? Further, that writing the chart constitutes the writing of technology? When medical words are not separated from medical acts, the writing of the chart and the technology of the chart are not separated. Thus, the medical goal of providing optimum health care is not separated from the writing of this health care. The integration of these two aspects, charting and medicine, is essential in order to engage in the practice of medicine.

This integration binds the written chart to time and space and is best understood in terms of objects, actions, people, goals, and uses.

We need a grounded understanding of the chart to describe its role in literate behavior. Looking at the chart as a technological system helps us reach this understanding. These questions arise: How do particular aspects of the chart generate particular medical effects? How does charting shape medical discourse and how does medical discourse shape charting? What material tools are used to construct the chart? What technological tools are used to construct the chart?

I utilized a methodology to look at the chart as technology by listing the charts' systemic complexities: its actions, uses, objects, participants, and goals that I obtained from data in the charting course student manual. For clarification purposes, I will describe this methodology further as I discuss my analysis. I placed the term, chart, in the center of a piece of paper and listed these 5 complex systems around it and filled them in with available data. The system of chart is a complex system of other systems. These systems interact and transform each other and the chart. Actions: I will focus only on certain actions due to time constraints. The doctor elicits the patient's chief complaint. As stated earlier, the doctor then develops the documentation for the findings by constructing a history of present illness organizing significant and appropriate information provided to the doctor by the patient and excluding irrelevant material. The doctor reminds the patient of any forgotten or repressed symptoms or problems. In constructing the sexual history, the student manual instructs predoctoral students to ask specific questions according to the needs of the patient and states: --quote "Be sure to assess the patient's comfort level and contract with them regarding the depth of the sexual history"—end quote. These actions as complex systems are sites of systems in process—

How the doctor constructs a patient history, how she knows what the patient has forgotten or repressed, how she assesses the comfort level of the patient in regards to sexual issues, how she defines the patient's problem, how she documents the patient's cooperativeness. These complex systems are sites of change—they are complex actions that transform the patient's illness narrative into the doctor's account of how she hears this narrative.

As I examined this charting system, I chose one example of one complex system, and I looked at it as a technology, as a system. I chose this example because it is the most obvious site where the integration of charting skills and medical skills occurs. Again, because of time constraints, I focus on one system. The doctor obtains the data base by constructing a write-up, underlines areas of concern in the write-up, lists areas of concern on the assessment page, groups areas of concern according to common disease mechanism, etiology or management approach and titles the groups to assess and establish a diagnosis. From this assessment, the doctor establishes a plan (predoctoral students are told that this plan quote—"flows naturally"—end quote. These organizing, synthesizing, and integrating actions are sites of transformation—the doctor's ways of seeing, conceptualizing, and organizing the data collected from and about the patient. I chose one doctor's order from one complex system--the hemoccult test—and looked at it as a system. This data was obtained not only from the sample chart in the student manual, but also from interviews with a registered nurse who works as a charge nurse in a large city hospital and with a family practice physician. (Refer to overhead.)When we are looking at the chart in this manner, we could go on for a very long time—looking at each piece as a complex system with other systems interacting from within and without.

These two-fold aspects, tool and technology, used to describe the medical chart in this presentation are interconnected and both construct and are constructed by the medical encounter of doctor and patient. As a tool, the medical chart as I am describing it here is both a reservoir of technical tools and a conduit by which to enact technological activities. When we look at chart as technology, its identity as a single tool gives way into complex systems active in the processes of use and development. For example, we saw in developing a history of the patient that this is not necessarily a straightforward activity. Rather, it is complex and is reconstructed writing of the chart as material—occupying time and space, of the chart as individual—an act of mind, and of the chart as cultural—as an historically-based practice. The material chart is for the individual doctor's use and for a cultural system of medicine. The chart holds reports, records, and documents medical information which is directed toward that goal of optimum health care. However, this chart tool is neither an end-product nor transparently revelatory upon the direction of our gaze. Rather, a complex array of issues involving knowledge control, textual production, and the jurisdiction of social disease accompanies the person to person interaction at this site—the technologizing of literacy. Moreover, the medical goal of providing optimum health care is not separated from the writing of this health care. At each point, participant decisions are made, as I have discussed them earlier. Thus, the chart takes on a given shape not only because of standardization and specified, systematized procedures. But, also because it is tied to humans and their choices informed by ideological, political, economical, and ethical concerns.